Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Grade Level Expectations			
Delaware Science			
Grade 6			
Activity/Lesson	**State**	**Standards**	
The Society	DE	SCI.6.1.1.1	Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.
The Society	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
The Society	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
The Society	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
The Society	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
The Society	DE	SCI.6.3.2.15	Use the size of the force and the distance over which the force acts to compare how much energy is transferred into a simple machine to how much energy is transferred out of a simple machine.
Wright Brothers: 1900 Glider	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1900 Glider	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1901 Glider	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1901 Glider	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.

Wright Brothers: 1901 Glider	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1901 Glider	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
Wright Brothers: 1902 Glider	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1902 Glider	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
Wright Brothers: 1902 Glider	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1902 Glider	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
Wright Brothers: 1903 Flyer	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1903 Flyer	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
Wright Brothers: 1903 Flyer	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
Wright Brothers: 1903 Flyer	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
Meet the Wrights	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.

Meet the Wrights	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1900: Kitty Hawks	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1900: Kitty Hawks	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1900: Kitty Hawks	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1900: Kitty Hawks	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1901: The First Improvement	DE	SCI.6.1.1.2	Design and conduct investigations with controlled variables to test hypotheses.
1901: The First Improvement	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1901: The First Improvement	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1901: The First Improvement	DE	SCI.6.1.1.13	Give examples of moving objects and identify the forces that act on these objects. Select examples where only one force acts on the object and examples where two or more forces act on the object. Explain that unbalanced forces acting on an object will change its speed, direction of motion or both.
1901: The First Improvement	DE	SCI.6.1.1.14	Conduct investigations to describe how the relative directions of forces simultaneously acting on an object (reinforce or cancel each other) will determine how strongly the combination of these forces influences the motion of the object.
1901: The First Improvement	DE	SCI.6.1.1.15	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.

1901: The First Improvement	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1901: The First Improvement	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1901: The First Improvement	DE	SCI.6.3.2.9	Give examples of moving objects and identify the forces that act on these objects. Select examples where only one force acts on the object and examples where two or more forces act on the object. Explain that unbalanced forces acting on an object will change its speed, direction of motion, or both.
1901: The First Improvement	DE	SCI.6.3.2.10	Conduct investigations to describe how the relative directions of forces simultaneously acting on an object (reinforce or cancel each other) will determine how strongly the combination of these forces influences the motion of the object.
1901: The First Improvement	DE	SCI.6.3.2.11	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.
1901: The First Improvement	DE	SCI.6.3.2.12	Explain that an object that feels the effects of balanced forces may be at rest or may be moving in a straight line with a speed that does not change.
New Data	DE	SCI.6.1.1.3	Accurately collect data through the selection and use of tools and techniques appropriate to the investigation. Construct tables, diagrams and graphs, showing relationships between two variables, to display and facilitate analysis of data. Compare and question results with and from other students.
New Data	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
New Data	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.

New Data	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
New Data	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1902: Success at Last	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1902: Success at Last	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1902: Success at Last	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1902: Success at Last	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1902: Success at Last	DE	SCI.6.3.2.16	Design a device that relies on the directional and/or mechanical advantage of a simple machine to perform a task (e.g., lift a weight, move a heavy object). Identify the forces and motions involved, the source of the energy used to complete the task, and how the energy is used by the simple machine.
1903: Powered Flight	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1903: Powered Flight	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1903: Powered Flight	DE	SCI.6.1.1.13	Give examples of moving objects and identify the forces that act on these objects. Select examples where only one force acts on the object and examples where two or more forces act on the object. Explain that unbalanced forces acting on an object will change its speed, direction of motion or both.

1903: Powered Flight	DE	SCI.6.1.1.15	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.
1903: Powered Flight	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1903: Powered Flight	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1903: Powered Flight	DE	SCI.6.3.2.9	Give examples of moving objects and identify the forces that act on these objects. Select examples where only one force acts on the object and examples where two or more forces act on the object. Explain that unbalanced forces acting on an object will change its speed, direction of motion, or both.
1903: Powered Flight	DE	SCI.6.3.2.11	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.
1903: Powered Flight	DE	SCI.6.3.2.12	Explain that an object that feels the effects of balanced forces may be at rest or may be moving in a straight line with a speed that does not change.
1903: Powered Flight	DE	SCI.6.3.2.15	Use the size of the force and the distance over which the force acts to compare how much energy is transferred into a simple machine to how much energy is transferred out of a simple machine.
1904: Improvement in Dayton	DE	SCI.6.1.1.5	Communicate scientific procedures, data, and explanations to enable the replication of results. Use computer technology to assist in communicating these results. Critical review is important in the analysis of these results.
1904: Improvement in Dayton	DE	SCI.6.1.1.9	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1904: Improvement in Dayton	DE	SCI.6.1.1.11	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.

1904: Improvement in Dayton	DE	SCI.6.1.1.14	Conduct investigations to describe how the relative directions of forces simultaneously acting on an object (reinforce or cancel each other) will determine how strongly the combination of these forces influences the motion of the object.
1904: Improvement in Dayton	DE	SCI.6.1.1.15	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.
1904: Improvement in Dayton	DE	SCI.6.3.2.4	Conduct investigations on a moving object and make measurements of time and distance traveled and determine the average speed of moving objects.
1904: Improvement in Dayton	DE	SCI.6.3.2.6	Describe how the speed of an object depends on the distance traveled and the travel time. Explain how the motion of an object can be described by its position, speed, and direction of motion.
1904: Improvement in Dayton	DE	SCI.6.3.2.9	Give examples of moving objects and identify the forces that act on these objects. Select examples where only one force acts on the object and examples where two or more forces act on the object. Explain that unbalanced forces acting on an object will change its speed, direction of motion, or both.
1904: Improvement in Dayton	DE	SCI.6.3.2.10	Conduct investigations to describe how the relative directions of forces simultaneously acting on an object (reinforce or cancel each other) will determine how strongly the combination of these forces influences the motion of the object.
1904: Improvement in Dayton	DE	SCI.6.3.2.11	Conduct investigations and describe how a force can be directed to increase the speed of an object, decrease the speed of the object or change the direction in which the object moves.
1904: Improvement in Dayton	DE	SCI.6.3.2.14	Explain that the transfer of energy from one object to another is caused by the exertion of a force.
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Grade Level Expectations			
Delaware Science			
Grade 7			
Activity/Lesson	**State**	**Standards**	
The Society	DE	SCI.7.1.1.1	Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.

1901: The First Improvement	DE	SCI.7.1.1.2	Design and conduct investigations with controlled variables to test hypotheses.
New Data	DE	SCI.7.1.1.3	Accurately collect data through the selection and use of tools and techniques appropriate to the investigation. Construct tables, diagrams and graphs, showing relationships between two variables, to display and facilitate analysis of data. Compare and question results with and from other students.
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Grade Level Expectations			
Delaware Science			
Grade 8			
Activity/Lesson	**State**	**Standards**	
The Society	DE	SCI.8.1.1.1	Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.
1901: The First Improvement	DE	SCI.8.1.1.2	Design and conduct investigations with controlled variables to test hypotheses.
New Data	DE	SCI.8.1.1.3	Accurately collect data through the selection and use of tools and techniques appropriate to the investigation. Construct tables, diagrams and graphs, showing relationships between two variables, to display and facilitate analysis of data. Compare and question results with and from other students.
1904: Improvement in Dayton	DE	SCI.8.1.1.5	Communicate scientific procedures, data, and explanations to enable the replication of results. Use computer technology to assist in communicating these results. Critical review is important in the analysis of these results.
1904: Improvement in Dayton	DE	SCI.8.1.1.6	Use mathematics, reading, writing, and technology in conducting scientific inquiries.
1904: Improvement in Dayton	DE	SCI.8.1.1.19	Explain that the transfer of energy from one object to another is caused by the exertion of a force. Create an energy chain to show how forces can change the mechanical energy of an object. Describe how the distance over which the forces act will influence the amount of energy transferred (and when appropriate, the amount of energy transformed).

1904: Improvement in Dayton	DE	SCI.8.3.2.2	Explain that the transfer of energy from one object to another is caused by the exertion of a force. Create an energy chain to show how forces can change the mechanical energy of an object. Describe how the distance over which the forces act will influence the amount of energy transferred (and when appropriate, the amount of energy transformed).
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Grade Level Expectations			
Delaware Science			
Grade 9			
Activity/Lesson	**State**	**Standards**	
The Society	DE	SCI.9.1.1.1	Identify and form questions that generate a specific testable hypothesis that guide the design and breadth of the scientific investigation.
1901: The First Improvement	DE	SCI.9.1.1.38	Identify that 'work' is the process by which a force transfers energy to an object, and use measured quantities to make calculations of the work done by forces (W = energy transferred = F·D).
1901: The First Improvement	DE	SCI.9.1.1.39	Conduct investigations to determine what factors influence whether a force transfers energy to an object or away from the object, and how the direction of the force (relative to the direction of motion) influences the quantity of energy transferred by the force.
1901: The First Improvement	DE	SCI.9.3.2.11	Describe the role that forces play when energy is transferred between interacting objects and explain how the amount of energy transferred can be calculated from measurable quantities.
1901: The First Improvement	DE	SCI.9.3.2.12	Give examples of common forces transferring energy to (or away from) objects. For example; a pulling force can transfer energy to an object (when the object is pulled along a floor), a pushing force can transfer energy away from an object (to slow its motion), and friction and air resistance always transfer kinetic energy away from moving objects.
1901: The First Improvement	DE	SCI.9.3.2.13	Identify that "work" is the process by which a force transfers energy to an object, and use measured quantities to make calculations of the work done by forces (W = energy transferred = F·D).

1904: Improvement in Dayton	DE	SCI.9.1.1.37	Describe the role that forces play when energy is transferred between interacting objects and explain how the amount of energy transferred can be calculated from measurable quantities.
1904: Improvement in Dayton	DE	SCI.9.1.1.38	Identify that ‘work’ is the process by which a force transfers energy to an object, and use measured quantities to make calculations of the work done by forces (W = energy transferred = F·D).
1904: Improvement in Dayton	DE	SCI.9.1.1.39	Conduct investigations to determine what factors influence whether a force transfers energy to an object or away from the object, and how the direction of the force (relative to the direction of motion) influences the quantity of energy transferred by the force.
1904: Improvement in Dayton	DE	SCI.9.3.2.11	Describe the role that forces play when energy is transferred between interacting objects and explain how the amount of energy transferred can be calculated from measurable quantities.
1904: Improvement in Dayton	DE	SCI.9.3.2.12	Give examples of common forces transferring energy to (or away from) objects. For example; a pulling force can transfer energy to an object (when the object is pulled along a floor), a pushing force can transfer energy away from an object (to slow its motion), and friction and air resistance always transfer kinetic energy away from moving objects.
1904: Improvement in Dayton	DE	SCI.9.3.2.13	Identify that “work” is the process by which a force transfers energy to an object, and use measured quantities to make calculations of the work done by forces (W = energy transferred = F·D).
1904: Improvement in Dayton	DE	SCI.9.3.2.14	Conduct investigations to determine what factors influence whether a force transfers energy to an object or away from the object, and how the direction of the force (relative to the direction of motion) influences the quantity of energy transferred by the force.